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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/942,241
Filing Date: August 29, 2001
Appellant(s): CHARI ET AL.

Lynne M. Blank
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 19 April 2006 appealing from the Office action mailed 21 June 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,714,340	SUTTON et al	2-1998
4,258,001	PIERCE et al	3-1981
6,599,668	CHARI et al	7-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

A. Claims 1-8, 13, 15-17, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sutton et al (U.S. Patent No. 5,714,340, issued 3 February 1998).

Regarding Claim 1, Sutton et al disclose a coating composition comprising microspheres (beads) dispersed in a fluid containing a coating aid and a gelling agent wherein the gelling agent forms a gel (Column 3, lines 3-10; Column 6, line 55-Column 7, line 27; and Column 11, lines 53-57) wherein the gel is capable of immobilizing the microspheres at random positions on a substrate (Fig. 2-5 illustrate the "receptor beads" randomly positioned on the substrate, Column 9, line 32-Column 10, line 15). Sutton et al further disclose the microspheres are dispersed uniformly (Example 2, Column 14, lines 50-52). Sutton et al further teach each layer of their coating composition is applied and dried prior to application of the next coating composition wherein the beads of the receptor layer are applied prior to the beads of the bead spreading layer (Column 11, lines 46-57). Therefore, prior to addition of the bead spreading layer, Sutton provides their composition consisting of a single layer of microspheres.

Regarding Claim 2, Sutton et al disclose the support is not premarked and does not contain microwells (Column 9, lines 33-41 and Fig. 1-7).

Regarding Claim 3, Sutton et al disclose the composition wherein the pattern is maintained upon gelling (Column 7, lines 33-41 and Fig. 2-5).

Regarding Claim 4, Sutton et al disclose the composition wherein the microspheres are chemically functionalized to have surface active sites (Column 2, lines 32-34 and Column 5, line 27-Column 6, lines 28).

Regarding Claim 5, Sutton et al disclose the composition wherein the active sites carry organic or inorganic attachments (Column 2, lines 32-34 and Column 5, line 27-Column 6, lines 28).

Regarding Claim 6, Sutton et al disclose the composition wherein the active site has organic or inorganic attachments thereon that are capable of chemical or physical interaction (Column 2, lines 32-34 and Column 5, line 27-Column 6, lines 28).

Regarding Claim 7, Sutton et al disclose the composition wherein the active site is bioactive (Column 2, lines 32-34 and Column 5, line 27-Column 6, lines 28).

Regarding Claim 8, Sutton et al disclose the composition wherein the bioactive site interacts with proteins or fragments thereof (Column 10, lines 15-39).

Regarding Claim 13, Sutton et al disclose the composition wherein the gelling agent undergoes thermal gelation (e.g. 37° C, Column 19, lines 10-28).

Regarding Claim 15, Sutton et al disclose the composition wherein the microspheres have a mean diameter of between 1 and 50 microns (Column 5, lines 11-32). It is noted that both the "bead spreading layer" and the "receptor layer" of Sutton et al meet the limitations of Claim 1.

Regarding Claim 16, Sutton et al disclose the composition wherein the microspheres have a mean diameter of between 3 and 30 microns (Column 5, lines 11-32).

Regarding Claim 17, Sutton et al disclose the composition wherein the microspheres have a mean diameter of between 5 and 20 microns (Column 5, lines 11-32).

Regarding Claim 21, Sutton et al disclose the composition wherein the microspheres comprise a synthetic or natural polymeric material (Column 5, lines 11-32).

B. Claims 1-24 and 26-28, 30-34 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Pierce et al (U.S. Patent No. 4,258,001, issued 24 March 1981).

Regarding Claim 1, Pierce et al disclose a coating composition comprising microspheres (beads) dispersed in a fluid containing a coating aid and a gelling agent wherein the gelling

agent forms a gel (Abstract and Column 16, line 55-Column 18, line 39) wherein the gel is capable of immobilizing the microspheres at random positions on a substrate (Fig. 2-14 illustrate randomly positioned beads on the substrate (Column 17 lines 1-67). Pierce et al further teach the microspheres are randomly dispersed with a uniform density i.e. stable dispersion (Column 17, lines 11-55). Pierce et al further teach their composition consists of a single layer of microspheres (Fig. 3, Columns 40-41 and Examples 7-49).

Regarding Claim 2, Pierce et al disclose the support is not premarked and does not contain microwells (Column 24, line 65-Column 25, line 5 and Fig. 2-14).

Regarding Claim 3, Pierce et al disclose the composition wherein the pattern is maintained upon gelling (Column 19, lines 48-65).

Regarding Claim 4, Pierce et al disclose the composition wherein the microspheres are chemically functionalized to have surface active sites (Column 30, line 32-Column31, line 44).

Regarding Claim 5, Pierce et al disclose the composition wherein the active sites carry organic or inorganic attachments (Column 30, line 32-Column31, line 44).

Regarding Claim 6, Pierce et al disclose the composition wherein the active site has organic or inorganic attachments thereon that are capable of chemical or physical interaction (Column 30, line 32-Column31, line 44).

Regarding Claim 7, Pierce et al disclose the composition wherein the active site is bioactive (Column 30, line 32-Column31, line 44).

Regarding Claim 8, Pierce et al disclose the composition wherein the bioactive site interacts with proteins or fragments thereof (Column 30, line 32-Column31, line 44).

Regarding Claim 9, Pierce et al disclose the composition wherein the microsphere contains a signature (Column 31, lines 9-19).

Regarding Claim 10, Pierce et al disclose the composition wherein the signature comprises an oil-soluble dye (Column 31, lines 9-19).

Regarding Claim 11, Pierce et al disclose the composition wherein the signature is interrogatable by optical means (Column 31, lines 9-19).

Regarding Claim 12, Pierce et al disclose the composition wherein the gelling agent is gelatin i.e. the microspheres within the composition are coated with gelatin therefore the composition comprises a gelatin gelling agent (Column 30, lines 49-54).

Regarding Claim 13, Pierce et al disclose the composition wherein the gelling agent undergoes thermal gelation (Column 19, lines 48-65).

Regarding Claim 14, Pierce et al disclose the composition wherein the gelling agent is gelatin i.e. the microspheres within the composition are coated with gelatin therefore the composition comprises a gelatin gelling agent (Column 30, lines 49-54).

Regarding Claim 15, Pierce et al disclose the composition wherein the microspheres have a mean diameter of between 1 and 50 microns (Column 9, lines 35-64).

Regarding Claim 16, Pierce et al disclose the composition wherein the microspheres have a mean diameter of between 3 and 30 microns (Column 9, lines 35-64).

Regarding Claim 17, Pierce et al disclose the composition wherein the microspheres have a mean diameter of between 5 and 20 microns (Column 9, lines 35-64).

Regarding Claims 18-20, Pierce et al disclose the composition wherein the microsphere range in size from 1 to 200 microns (Column 9, lines 40-41). The instant claims are drawn to microspheres "capable of being" immobilized at concentrations 100-1 million/cm^2; 1,000 to 200,00 / cm^2; and 10,000 to 100,00/cm^2. While Pierce do not teach a density of immobilization, the 1 micron microspheres of Pierce are clearly capable of being immobilized at the claimed densities as claimed. Therefore, Pierce discloses the claimed microspheres.

Regarding Claim 21, Pierce et al disclose the composition wherein the microspheres comprise a synthetic or natural polymeric material (Table I, Column 13, lines 8-44).

Regarding Claim 22, Pierce et al disclose the composition wherein the polymeric material is amorphous i.e. polystyrene(Table I, Column 13, lines 8-44).

Regarding Claim 23, Pierce et al disclose the composition wherein the polymeric material is amorphous i.e. polystyrene (Table I, Column 13, lines 8-44).

Regarding Claim 24, Pierce et al disclose the composition wherein at least one active site comprises a functionality as claimed (Column 10, line 56-Column 13, line 4).

Regarding Claim 26, Pierce et al disclose the composition wherein the microspheres are prepared by emulsion polymerization (Column 10, lines 42-65).

Regarding Claim 27, Pierce et al disclose a microarray comprising a substrate coated with a composition comprising microspheres (beads) dispersed in a fluid containing a coating aid and a gelling agent wherein the gelling agent forms a gel (Column 8, lines 24-27 and Column 16, line 55-Column 18, line 39) wherein the gel is capable of immobilizing the microspheres at random positions on a substrate (Fig. 2-14 illustrate randomly positioned beads on the substrate (Column 17 lines 1-67). Pierce et al further teach the microspheres are randomly dispersed with a uniform density i.e. stable dispersion (Column 17, lines 11-55). Pierce et al further teach their composition consists of a single layer of microspheres (Fig. 3, Columns 40-41 and Examples 7-49).

Regarding Claim 28, Pierce et al disclose the microarray wherein the substrate is free of receptors designed to physically or chemically interact with the microspheres (Column 24, line 65-Column 25, line 37) whereby the microspheres remain stably dispersed within the carrier i.e. not interacting with the support (Column 17, lines 1-21 and Column 18, lines 1-24).

Regarding Claim 30, Pierce et al disclose the microarray wherein the gelling agent is gelatin i.e. the microspheres within the composition are coated with gelatin therefore the composition comprises a gelatin gelling agent (Column 30, lines 49-54).

Regarding Claim 31, Pierce et al disclose the microarray wherein the microspheres bear chemically active sites (Column 10, line 56-Column 13, line 3 and Column 30, line 32-Column31, line 44).

Regarding Claim 32, Pierce et al disclose the microarray wherein the active site is bioactive (Column 30, line 32-Column31, line 44).

Regarding Claim 33, Pierce et al disclose the microarray wherein the substrate comprises glass, plastic, cellulose acetate (Column 24, line 65-Column 25, line 37).

Regarding Claim 34, Pierce et al disclose the microarray wherein the substrate is flexible e.g. paper (Column 25, lines 1-3).

Regarding Claim 43, Pierce et al disclose the microarray wherein the support is not premarked and does not contain microwells (Column 24, line 65-Column 25, line 5 and Fig. 2-14).

C. Claims 1-2, 4, 9-12, 15-17, 21-23, 26-28, 30-31, 33-34 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Chari et al (U.S. Patent No. 6,599,668, filed 3 August 2001).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding Claim 1, Chari et al disclose a coating composition consisting of a single layer of microspheres (Column 3, lines 57-60) randomly dispersed in a fluid containing a coating aid and a gelling agent wherein the gelling agent (Column 5, line 55-Column 10 and Example 1, Column 12, lines 10-22 and Claim 19).

Regarding Claim 2, Chari et al disclose the support is not premarked and does not contain microwells (Column 7, lines 8-20).

Regarding Claim 4, Chari et al disclose the composition wherein the microspheres are chemically functionalized to have surface active sites i.e. cross-linking agent (Column 6, lines 11-13).

Regarding Claim 9, Chari et al disclose the composition wherein the microsphere contains a signature i.e. color dye (Column 5, lines 24-54).

Regarding Claim 10, Chari et al disclose the composition wherein the signature comprises an oil-soluble dye (Column 5, lines 34-35).

Regarding Claim 11, Chari et al disclose the composition wherein the signature is interrogatable by optical means i.e. color dye (Column 5, lines 24-54).

Regarding Claim 12, Chari et al disclose the composition wherein the gelling agent is gelatin (Column 5, lines 60-65).

Regarding Claim 15, Chari et al disclose the composition wherein the microspheres have a mean diameter of between 1 and 50 microns (Column 12, lines 15-17).

Regarding Claim 16, Chari et al disclose the composition wherein the microspheres have a mean diameter of between 3 and 30 microns (Column 12, lines 15-17).

Regarding Claim 17, Chari et al disclose the composition wherein the microspheres have a mean diameter of between 5 and 20 microns (Column 12, lines 15-17).

Regarding Claim 21, Chari et al disclose the composition wherein the microspheres comprise a synthetic or natural polymeric material (Column 5, lines 24-30).

Regarding Claim 22, Chari et al disclose the composition wherein the polymeric material is amorphous i.e. polystyrene (Column 5, lines 24-28).

Regarding Claim 23, Chari et al disclose the composition wherein the polymeric material is amorphous i.e. polystyrene (Column 5, lines 24-28).

Regarding Claim 26, Chari et al disclose the composition wherein the microspheres are prepared by emulsion polymerization or limited coalescence (Column 3, lines 57-67).

Regarding Claim 27, Chari et al disclose a microarray composition comprising a single layer of microspheres (Column 3, lines 57-60) randomly dispersed in a fluid containing a coating aid and a gelling agent wherein the gelling agent (Column 5, line 55-Column 10 and Example 1, Column 12, lines 10-22 and Claim 19).

Regarding Claim 28, Chari et al disclose the microarray wherein the support is not premarked and does not contain microwells (Column 7, lines 8-20).

Regarding Claim 30, Chari et al disclose the microarray wherein the gelling agent is gelatin (Column 5, lines 60-65).

Regarding Claim 31, Chari et al disclose the microarray wherein the microspheres bear chemically active sites i.e. cross-linking agent (Column 6, lines 11-13).

Regarding Claim 33, Chari et al disclose the microarrys wherein the substrate comprises plastic, cellulose acetate or polyethyleneterphthalate (Column 6, line 61-Column 7, line 2).

Regarding Claim 34, Chari et al disclose the microarrys wherein the substrate is flexible (Column 6, line 61-Column 7, line 2).

Regarding Claim 43, Chari et al disclose the microarray wherein the support is not premarked and does not contain microwells (Column 7, lines 8-20).

(10) Response to Arguments

Claim interpretation:

The claims are drawn to a coating composition "consisting of a single layer of microspheres randomly dispersed with a uniform density in a fluid on a substrate, the fluid

containing a coating aid and a gelling agent, wherein the gelling agent forms an immobilizing gel."

The claim recites the closed language "consisting". The closed language "consisting" is used in the claim to define the "composition". The closed language "consisting" does not define or limit products made using the composition because the claim merely defines the composition. For example, a substrate having the coating composition may have additional elements and/or layers because the claim only defines a coating composition and does not limit the use of additional elements to construct the substrate.

Additionally, the claim encompasses an intermediate product formed using the composition. For example, a substrate coated with a composition consisting of a single layer of microsphere which is subsequently coated with an additional layer or element is encompassed by the claim because the claim defines the composition and not the product made using the composition and because the intermediate product is itself a product.

The claim recites "a single layer of microspheres". This recitation defines a layer. This recitation encompasses a layer of microspheres at various planes within the layer and overlapping within the layer because the claim does not require the microspheres be positioned along a single plane or within the same plane. For example, if a substrate has a thick single layer of coating composition, the claim encompasses microspheres within the single layer located at various positions within the layer and at various distances from the substrate and even overlapping within the coating composition. Furthermore, as stated above, the claim is drawn to a coating composition and does not limit a final product made using the composition.

I. Appellant traverses the rejection over Sutton. Appellant asserts that Sutton does not teach 1) a single layer of microspheres randomly dispersed with a uniform density or 2) use of a gelling agent that forms an immobilizing gel. Appellant further asserts that the polymer

layer of Sutton corresponds to Example 2, Formulation 2 of the instant specification, which results in streaks caused by aggregation of beads. Appellant asserts that Formulation 2 uses a polymer designated as class II of the receptor zone polymers of Sutton, which does not form an immobilizing gel resulting in non-random distribution of beads. Appellant asserts that one skilled in the art would expect the additional classes taught by Sutton et al to act similarly.

The arguments have been considered but are not found persuasive.

First, the claims are broadly drawn to a gelling agent that forms an immobilizing gel. As Appellant acknowledges, Sutton et al discloses numerous classes of polymers as coating compositions (i.e. Classes I-VI). Appellant has provided no evidence to support the assertion that one skilled in the art would expect the additional classes taught by Sutton et al to act similarly. The fact that the coating composition are sorted into different classes (i.e. Classes I-VI), would suggest that they are different. Sutton et al does not teach or suggest that all of Classes I-VI function alike and Appellant has provided no such evidence of similar functionality. Furthermore, while Sutton et al teaches the coating polymer of Example 2, Formulation 2 of the instant specification, the reference teaches numerous different coating polymers. Sutton et al further teach that properties of Class I:

> Further some of the polymers of group (I) herein make it possible to form uniform coatings of receptor zones due to the very low viscosities achieved from sheer thinning during extrusion hopper coating. A further advantage is achieved with certain of the polymers in that, immediately after forming uniform coatings, the viscosity of the polymers increases substantially resulting in a "set layer" that remains stable and uniform during wet transport and drying of the polymers. (Column 7, lines 33-41)

This teaching clearly suggests that the coating polymers of the different classes function differently, and not similarly as asserted by Appellant. Appellant has not provided any evidence of similar functionality between the coating compositions of Classes I-VI. Furthermore, Sutton specifically teaches properties of Class I (reproduced above) suggesting the remaining classes function differently. Therefore, Appellant's assertion that the coating compositions of Sutton would all function as their own Formulation 2 is not found persuasive.

Second, the claims are broadly drawn to a coating composition consisting of a single layer of microspheres dispersed with a uniform density in a fluid on a substrate, the fluid containing a gelling agent that forms an immobilizing gel. Sutton et al clearly teaches the claimed coating composition. As cited above, Sutton et al teaches "uniform coatings" wherein the viscosity increases to form a "set layer" that remains uniform. Hence, Sutton et al specifically teaches gelling agent that forms an immobilizing gel i.e. polymer that increases in viscosity "resulting in a "set layer" that remains stable and uniform" (see above, Col. 7, line 33-41).

The claim is drawn to a coating composition "consisting" of a single layer of microspheres. While the term "consisting" is a closed transitional phrase, the claimed "single layer" encompasses an intermediate product. Sutton et al specifically teach an intermediate product having the single layer of microspheres dispersed in the coating composition as claimed (Column 11, lines 53-57). Sutton et al specifically teach preparation of intermediate products i.e. "Each layer was dried before it was overcoated with another layer" (Column 11, lines 46-47). Hence, the intermediate layer is specifically prepared by Sutton et al and is encompassed by the claimed composition consisting of a single layer.

II. Appellant traverses the rejections over Pierce. Appellant asserts that the composition of Pierce includes particles in a three-dimensional structure but does not teach the newly claimed single layer. The argument has been considered but is not found persuasive because, as cited above, Pierce specifically teach a composition consisting of a single layer of microspheres (Fig. 3, Columns 40-41 and Examples 7-49). It is noted that Appellant acknowledges the Pierce teaches "a single layer" (page 6, line 1 of the Brief). As discussed above, the instant claims are drawn to a composition consisting of a single layer of microsphere. The closed term "consisting" limits the composition, but does not limit products

made using the composition. Furthermore, the claim is not limited to a two-dimensional structure so as to define over a three-dimensional layer as illustrated by Pierce (Fig. 3). Pierce clearly teaches a single layer of microspheres as claimed.

III. Appellant traverses the rejections under 102(e) over Chari. Appellant acknowledges that Chari teaches a coating composition comprising a single layer of microspheres randomly dispersed in a fluid. However, Appellant asserts that the composition and substrate of Chari are used for a purposed different than that instantly claimed. Appellant asserts that the instantly claimed composition and substrate are drawn to microarrays and therefore functionally different from the color filter array of Chari.

The arguments have been considered but are not found persuasive. The claimed composition and microarray are not limited to biological and chemical functionality. Furthermore, the claims are drawn to a composition for making a microarray (Claim 1-24, 26) and a microarray comprising a coated with a composition (Claims 27-28, 30-34, 43). However, neither the claims nor the specification define or limit the composition or microarray over the filter array of Chari. It is further noted that Appellant has not pointed to any such definitive teaching the specification and none has be found by the examiner. Therefore, the claims are given their broadest reasonable interpretation to encompass a composition of microspheres.

The courts have stated that claims drawn to an apparatus must be distinguished from the prior art in terms of structure rather than function see *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525,1528 (Fed. Cir. 1990) (see MPEP, 2114). The structures required in the instant claims are a single layer of microspheres within a composition and in a fluid containing a coating aid

and gelling agent. The claimed structures are taught by Chari. Because the courts have clearly stated that an apparatus is defined by its structure rather than function, Chari teaches the compositions as claimed.

IV. Appellant traverses the rejection under statutory double patenting over Chari. Appellant's arguments have been considered and found convincing. The rejection under obviousness-type double patenting is withdrawn.

For the above reasons, it is believed that the above rejections should be sustained.

Respectfully submitted,

BJ Forman

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